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NEXT YEAR'S EXAMINATIONS—A SUGGESTION.

The schools re-open next week; and in December the professional examinations will furnish us with a few new graduates. They can only be a few—the summer examinations, which always provide the bulk of our new members, will not, under our present rules, be held till July. This is a long time to wait; and a suggestion which a Class D student advanced in our correspondence columns last week seems worthy of consideration. He asks "Why not work out the session of thirty weeks without any break for the usual Christmas and Easter holidays?" If this were done, it would be no more than a return to something very like what has been the practice of the schools for the greater part of the profession's history. Twenty years ago, the Christmas and Easter vacations were very short—so short that much discontent amongst the students resulted—and the summer examinations at all the schools were held in May, about two months before our present date. The London School commenced its present system of a long spring vacation, a summer session, and a July examination in 1896; but the Scotch Colleges held to the old plan of May examinations till only a year or two ago.

Our bye-laws now fix the summer examinations for July at all the centres, but there is time to remodel them if a May examination is thought preferable. In addition, our existing bye-laws would enable an emergency examination to be held much earlier than May for the benefit of men who fail at Christmas—though this would only affect a comparatively small number of students.

Probably at next month's Council meeting there will be be some discussion – perhaps too much – as to whether it is necessary to accelerate our output of graduates, and, if so, how best to do it. This suggestion of May examinations seems a possible solution of the latter problem.

ANÆSTHESIA.

Prof. Vennerholm's paper upon anæsthesia is one of those which show how much we have lost by the failure of the International Congress. Those parts of the paper which an English clinician's experience enables him to criticise are good; but it contains much matter which can only be properly criticised by men who have followed Continental methods—and this criticism could not be obtained. Vennerholm's methods of general anæsthesia – especially his use of chloral hydrate—may not commend themselves to English readers. But Vennerholm's reputation justifies us in believing that his chloral-chloroform procedure must be less dangerous than it appears at first sight.

PURPURA (?) IN THE DOG.

On account of the variety of this condition it is with a certain amount of trepidation that I report this case. I can find no reference to any previous case having been reported.

The patient was a three year old fox terrier, in very fit condition. On the evening of August 17, his owner noticed him to be bleeding from the nose, and becoming alarmed, as he was a valuable dog, he brought him to the infirmary on the next morning.

The history was of a normal healthy dog except for the bleeding at the nose, and that while rendering first aid to this condition, the owner noticed the abdomen to be covered in small purple patches

Examination gave temperature 104, pulse 55, and of a peculiar dragging nature.

The breath was fœtid and an examination of the mouth showed the cheeks and gums to be much ulcerated. The majority of the ulcers were small, but two were large. On turning the patient on to his back it was found that the whole of the abdomen to the right side of the penis was a purple mass. The owner drew attention to the fact that they started as spots and had all united to form one large purple area. To the left of the penis was a spot 1 in. by ½ in. and on the flank fold was another and smaller one. On each of these three centres of discoloration was a blister which on being squeezed discharged a straw-coloured serum.

Diagnosis. I came to the conclusion that I was dealing with purpura, and on account of the variety of the condition I showed the case to Mr. Woodger, who agreed as to the condition present.

Prognosis. Doubtful.

Treatment. Ordered him to be fed on plenty of green vegetables and raw meat; prescribed

Liq. extract ergot ℥v.
Tr. ferri. percholor ℥v,

To be given three times daily.

The larger ulcers in the mouth were touched with caustic.

The next day the patient was seen again and it was found that he had had two more attacks of bleeding from the nose, and that the discoloration was more intense; more spots had appeared down the thighs and were forming larger masses of discoloration.

On the 3rd day the colouring was diminishing, and this continued until the 7th day, when, except for the remains of the blisters, the skin was apparently normal. The ulceration of the mouth gradually disappeared, and the case was lost sight of on the 10th day.

If this was purpura, it is interesting to note the entire absence of œdematous swelling and also the absence of the great depression so noticeable in horses. Another point is that the disease was not the sequel of any previous debilitating condition.

W. G. BLACKWELL.

ABSTRACTS FROM FOREIGN JOURNALS.

SERIOUS INJURIES OCCURRING DURING LIGHT EXERCISE.

Coureur records (*Revista de Veterinaria et Zootechnia*) the following remarkable case. A thoroughbred filly, while being exercised at a hand gallop, became lame. The jockey attempted to stop her; but she fell, and then rose again, showing grave disorganisation of the locomotor apparatus. The left hind limb was normal in its position and direction. The right hind and left fore limbs almost bore upon the ground at the fetlock joints; in both, the foot was in good position and the phalangeal region horizontal. The right fore limb rested upon the ground by the posterior aspect of the first inter-phalangeal joint and by the heels, the toe of the shoe being directed upwards.

Despite this grave condition, the animal was able to get into the stable again; and the author did not examine her until eight or nine hours after the accident. The diagnosis then arrived at was—on the right fore limb, luxation of the first inter-phalangeal joint and rupture or disinsertion of the ligaments and tendons, and, on the two other limbs, rupture of the sesamoidal apparatus and lesions of the flexor tendons of the foot. All treatment was impossible, and the animal was slaughtered at once.

Dissection of the limbs revealed the following injuries. On the right fore limb, the perforans tendon was divided longitudinally into two bands. The perforatus tendon was relaxed, in consequence of rupture of the glenoidal apparatus. The superior portion of the second phalanx was fractured. The articular synovial membrane was opened posteriorly to a considerable extent. There was a luxation of the first phalanx, the inferior articular surface of which was bearing directly upon the tendon. There were also lesions of the two lateral ligaments.

On the other two limbs, there was considerable subcutaneous hæmorrhage. Both suspensory ligaments were completely ruptured transversely. There was extensive communication between the articular and superior sesamoidean synovial membranes. The perforatus tendon was slightly stretched, and the perforans was separated into three or four longitudinal bands.

The case is extremely curious from the fact that such serious injuries were produced upon three limbs simultaneously when the animal was travelling at a moderate pace upon good ground. It can only be explained by the hypothesis of an abnormal structural fragility.—*Annales de Méd. Vét.*

ACUTE POLIOMYELITIS (LANDRY'S PARALYSIS) IN A MARE.

The well-known acute poliomyelitis of man is the result of an infection of the spinal cord, especially affecting the anterior or motor corona. In the child the disease is called infantile spinal paralysis or simply spinal paralysis. In the adult it is called Landry's paralysis, or, where it develops quickly and the inflammation extends along the whole length of the spinal cord, acute ascending paralysis. In the horse, the disease is very rare.

Marchand, Petit, Fayol, and Caziot record (*Recueil de Méd. Vét. d'Alfort*) the following case. The subject was a nine-year-old mare in good condition, showing the following symptoms:

At rest, the mare stood somewhat stiffly, holding the head high and extended straight forward, In progression, she showed well-marked muscular inco-ordination. Turning to the left was especially difficult; and, when doing so, the mare seemed in danger of falling. The symptoms rapidly became accentuated; and, on the evening of the first day of the illness the gait had become tottering and the diagnosis of acute paraplegia was arrived at. During the period of illness the temperature ranged between 99·5° F. on the first day to 102·2° F. and 105·8° F. on the last days.

Treatment consisted in derivative measures—bleeding, saline purgatives, derivatives to the skin, mustard clysters, pilocarpine injections, and dieting. Two days after the onset of the illness the mare fell and could not again rise. Death took place on the eighth day.

Post-mortem examination—which included histological investigation—showed the case to be exactly similar both clinically and histologically to the the human poliomyelitis, or Landry's paralysis, running a peracute course, The authors add that *human* poliomyelitis is due to a filterable virus. —*Berliner Tier. Woch.*

POISONING IN HORSES FROM "SMUTTY" FOOD.

Wiedmann records (*Zeitschrift für Veterinarkunde*) the following case.

Four horses on a farm were attacked with colic. Wiedmann was sent for, and found one horse already dead. The history was that the animals had shown slight colicky symptoms. Upon examining the three living animals, Weidmann found them quiet, very dull, and almost apathetic. When the hind limbs were palpated the horses showed pain, and pressure caused groaning. The abdomens were slightly tympanitic, and peristalsis was lessened. In addition, the patients showed tenesmus, salivation, grinding of the the teeth, increased frequence of the respirations, and rustling tracheal sounds, There was no fever. The most striking of all the symptoms were an *intense quince-yellow colour* of all the visible mucous membranes and *the discharge of bloody urine.*

Post-mortem examination of the one dead horse showed severe icterus. All the tissues were coloured an intense yellow; and, of the internal organs, the liver and kidneys were especially affected. In addi-

tion to the yellow staining, there was cloudy swelling and fatty degeneration of the liver, hæmorrhagic nephritis, and a moderate degree of inflammation of the gastro-intestinal mucous membrane.

The owner stated that the horses had been eating barley-straw affected with "smut," which had inadvertently been used as a litter. The ears of the straw were thickly covered with a coal-black odourless powder. Investigation showed this to be the smut-fungus *Ustilago carbo*.

As the illnesses had appeared suddenly after eating this straw, and as no other cause was discernible, the author was forced to conclude that the cases were the result of smut-poisoning.

The treatment consisted first in emptying the intestinal canal by the injection of small doses of arecoline. Afterwards frequent clysters of warm water were given, and Carlsbad salts by the mouth. One of the horses died on the third day of treatment; the other two recovered after periods of illness of eight and ten days respectively.—*Münch. Tier. Woch.*

W. R. C.

LOCAL AND GENERAL NARCOSIS.*

By Prof. Dr. JOHN VENNERHOLM, Veterinary High School, Stockholm. [Abstract].

This subject is one in which I have taken great interest, and during the last twenty-five years no operation has been performed in my clinic without the narcosis, that is, if pain was anticipated. However, I consider my task as that of an introducer, so I need not discuss the whole question, but will point out the special experiences we have gained, and acquaint you of the results to which we have come in our country.

I begin with the general narcosis. The deficiences and difficulties which unquestionably are connected with the chloroform-narcosis induced me eighteen years ago to employ hydrate of chloral as an anæsthetic. This I have done for some years, and also completed the hydrate of chlorate narcosis with chloroform. It is the same method which has now been taken up in wider circles; I used a somewhat different method from others—I employed the hydrate of chloral in the form of intravenous injection.

In the *Zeitschrift für Thiermedizin*, 1898, I have given detailed accounts of the results of my experiments; here, however, I shall restrict myself myself to a brief report of the results obtained.

The hydrate of chloral is used as a hypnotic rather than as an anæsthetic, and is generally not sufficient alone, in cases of more extensive surgical operations, but with chloroform or chloroform-ether as complement it is excellently applicable. At first I began with an intravenous injection in a dose of 35 to 50 grm. For a dose of 50 grm., however, the horse will react more or less for the operation. Pulse, respiration, and also temperature were not seriously influenced by the dose. We have in the mixed hydrate of chloral-chloroform narcosis a method which, in comparison with the pure chloroform method, has the advantage that the state of excitation is only a very little noticeable, and that a very small dose of chloroform, 24 to 50 cgm., is required to put the horse into a deep narcosis if the operation is not excessively lengthy. The anæsthesia of the chloroform shows itself here in its full strength, and makes up in this case for the deficiences of the hydrate of chloral. The chloroforming is effected in the usual manner, and begins as soon as the hydrate of chloral has been fully effective, viz., ten minutes after the injection. The hydrate of chloral is, so to say, a means of increasing the effects of the chloroform to a very high degree during the whole time; one is able to notice the specific effects of hydrate of chloral.

METHOD OF INJECTION.

The hydrate of chloral is to be dissolved in three times its quantity of distilled water, and must be filtered should the impurity of the preparation demand it. The solution must have the normal body temperature, the syringe must be of such a size as to hold the whole quantity, about 200 grm. It can be provided with a two-way stop-cock, but this is in no way essential, and the author even prefers a usual simple syringe. It must have rings on the end so that it can be controlled by one hand during the injection. Accessories of this syringe are an indiarubber tube 15 to 20 cm. long and a cannula. The indiarubber tube has at its end a sheath which closes tightly the mouthpiece of the syringe, at the other end a funnel, which must also fit well into the back of the cannula or the injection tube, and which can easily be inserted and removed.

As complications can arise after the injection of hydrate of chloral, the construction of the cannula is of the highest importance. After various experiments and modifications, I find the syringe adopted the best. In the beginning I employed injecting-needles somewhat larger than than those of the Pravaz syringe, but otherwise the same. These, however, had the disadvantage when the animal moved that they pierced the opposite vein-wall, causing the solution to be injected into the perivascular connective tissue, which must be avoided under all circumstances.

I then took small trocars into use, whose sheaths naturally could not pierce the opposite vein-wall in such a way as an injection tube with a sharp point. The fact that the sheath as a rule remains in the vein-lumen, after the trocar has been inserted and the stilletto has been drawn out, is indeed a great advantage; but, on the other hand, a displacement may occur out of the vein-lumen if it is not deeply enough inserted at the very beginning; besides, it demands considerable force to pierce through the skin with a trocar: this resistance presumably results in high pressure upon the trocar with great compression of the vein, and when the trocar has finally pierced the skin it frequently passes through the vein, and repeated attempts are required to hit upon the vein lumen. Connected with this a loss of time and also a small infiltration of blood into the perivascular connective tissue, which must, if possible, be avoided, as this may cause a certain tendency to phlebitis.

I therefore came back to the needle cannula and improved it, in so far as I inserted into the cannula a blunt 7 to 8 cm. sheath as soon as the vein-lumen had come in contact with it. This sheath fitted tightly to the needle, protruding by about a centimetre, and fitted into the back end of the funnel of the tube. In this way the slipping out of the needle from the vein-lumen, and any injury to the opposite vein-wall, was prevented in a most simple way. Later on I have noticed that this method has also been suggested by others. It is certainly understood that the needle must always be kept well sharpened. It does not serve the purpose if the sheath is too large, as the hydrate of chloral is injected in too violent a manner, and this can fill the vein-lumen, irritate the intima, and cause thrombophlebitis. On the other hand, it must not be too close, as otherwise on inserting the needle the blood will not

* Presented at the Tenth International Veterinary Congress, held in London, August, 1914.

flow in a full jet, and thus it may be difficult to ascertain whether the needle has penetrated into the vein-lumen or not. Before making the injection, the hobbles, etc., should be placed upon the horse, so that it can be thrown down in time should it not fall down by itself; without this precaution the horse may come down far away from the place of operation and possibly become injured. Should it not fall by itself in any case, little force only is necessary to throw it, to which generally it offers very little resistance.

Cannula and sheath should be sterilised, which is done best by boiling, also the syringe, if it can stand the temperature.

The jugular vein in about the middle of the neck is the place where the solution is injected best. Here the hair should be shaved to an extent of some square centimetre and the skin rubbed in with iodine spirit. If the operation makes it necessary to throw the horse on the left side it is more advantageous that the injection be made on the right side, as the little wound will be less exposed to impurity. The hands must be well disinfected. The solution is drawn up into the syringe, the tube of which is to be held in an upward direction, the forcer pressed forward until the air is removed and the clear solution flows. Should, however, a little air get into the vein it would not matter. One assistant holds the syringe and the sheath, and also a bottle of iodoform collodium in readiness.

One helper with a rein in each hand takes his position in front of the horse, and has to take care that the animal keeps his neck in a natural position, no bending sideways. On restless horses the nose-twitch can be applied, but it causes a stretched and unnatural position of the neck, and this would somewhat interfere with the insertion of the cannula. The operator takes hold of the sharp cannula with the right hand, whilst he compresses the vein 10 cm. beneath the middle of the neck with the left. A repeated relaxation and increasing of the pressure easily indicates the place where the compressed vein is the most perceptibly protruding. The compression must be kept on for some moments to allow the vein, in consequence of the stagnation of the blood, to extend and bulge as much as possible. The higher the pressure of the blood in the vein in consequence of the stagnation the easier the cannula will find the vein-lumen, therefore the operation is easier with young and strong animals (stallions with thick necks excepted) than with old animals with a low pressure of blood. In those cases where the vein does not come out distinctly, the pressure of the blood in the vein can be increased through the horse being allowed to chew. Then the sharp cannula is to be inserted through the skin and vein-wall in a slanting inward direction at the back and below. If the vein-lumen has been hit upon and the pressure of the blood is fairly vigorous, then the blood flows out in a jet from the tube. If the vein-lumen has not been hit upon, the cannula must be drawn back a little, without, however, taking it out of the skin, and the attempt to get into the lumen must be made once more. Should, however, repeated attempts lead to no success, it would be the best to renew the attempt on the other side of the neck. Then the sheath is to be inserted into the cannula, the funnel-shaped mouthpiece of the tube to be put into the same, and now the left thumb relaxes the compressed vein. If the vein pressure be relaxed before the syringe has been fixed to the sheath naturally some air may enter into the vein. Now the solution of hydrate of chloral is slowly injected. The operation, however, must be completed within one minute, as effects become very quickly evident. Therefore, should the syringe not be large enough to contain the whole quantity of the solution to be injected, and the injection has to be made in two applications, then only a small dose should be injected first which does not cause the animal to fall, otherwise the horse might easily fall down before the remainder of the solution has been drawn up into the syringe and injected. Immediately after the injection the vein is again to be compressed and the tube removed out of the sheath, the blood flows now and washes away any part of the solution remaining in the sheath. Then the tube is again seized by the right hand, whose index finger covers the opening of the same. The left hand relaxes and supports the skin on the place of injection, and then the tube is to be drawn out. Immediately after iodoform-collodium is spread on the small wound, the helpers are in readiness to throw down the horse, and one awaits the fall of the horse if the horse begins to stagger. The first sign of its beginning to lose its balance are rocking movements to and fro, the extensor begins to fail, the pastern joints rise and "knuckle over," and at last it drops down, hind part first; frequently it occurs that the horse tries to raise itself on its fore legs; the helpers can in such a case easily hold down the head and neck of the animal, whereupon the legs are fixed; the helper lying at its head is warned not to come into contact with the needle wound if this happens to be on the upper part of the neck of the bound horse. The time after which the horse is allowed to raise itself after the injection varies from threequarters to two hours, depending on the reaction, upon the dose, and the individual susceptibility to the hydrate of chloral. The same measures which have been taken to chloroform the animal are to be taken on regaining consciousness. A simple measure of precaution is the rubbing the place of injection with a little iodine spirit when the animal gets up.

Complications resulting from the Intravenous Injection of Hydrate of Chloral.

Undoubtedly the method of anæsthesia just described is extremely convenient, and especially suitable where there are not the sufficient number of assistants to apply any other method. It is of importance that the animal should be gently brought down and does not make any violent attempts to free itself, as such may result in fractures of bones, etc. That this method has not been recognised in practice is the outcome of certain deficiences. It must be assumed that it has not been tried on a large scale up to now: for that reason I have investigated, and have been able to ascertain that certain disadvantages, such as thrombosis, in remote regions of blood-vessels, heart failure, paralysis of the lungs, etc., are not to be feared, which according to some literature are said to attach to it. Only the danger of a very serious complication remains in any case, viz., the phlebitis in the vena jugularis. This danger lies in the chloral hydrate possessing specific qualities of contaction causing inflammation. A few drops of the solution getting into the perivascular connective tissue are sufficient to cause a violent periphlebitis which, as a rule, turns purulent and leads to thrombophlebitis. As soon as the clear blood flows forth after the removal of the tube after the injection, and when the vein is closed, we have the guarantee that everything is in good order. If, however, no blood flows, and if some solution is escaping through the sheath, then it is possible that the tube has slipped out of the vein-lumen, and to all probability more or less of hydrate of chloral has been injected into the loose perivascular connective tissue. It is also not absolutely necessary that the tube must be out of the vein-wall as soon as the clear solution flows forth; the author had on various occasions to satisfy himself of it. If the injection is executed quickly the blood is forced out, and the vein fills finally with the clear solution.

Convenient—nay, even ideal—as I consider these methods of anæsthesia in other respects, yet the danger of phlebitis has been evident enough to hinder its intro-

duction into practice. I have compensated it with a dose of hydrate of chloral, 25 to 35 grm., which the horses took in half a pail of water after they had been deprived of water for one or two days; but by no means all horses like the taste of it, and therefore, like a number of other clinics have done, I had the food mixed with salt during the time the horses were deprived of water to make them take the solution of hydrate of chloral, but also this had not always the desired effect. Then the solution can be given with the food. In case of need the solution can be introduced per rectum, but the effect is much less intensive, and it is not to be expected until from twenty to thirty minutes, whereas the application of the dose to the thirsty animal works within five to ten minutes with its whole effectiveness, so far as can be expected from comparatively so small a dose of hydrate of chloral. The horses did not fall, but were only stupefied, and offered less resistance, and sometimes staggered on their way to the operation (they must take the solution from the manger). This dose of hydrate of chloral, however, does not take away the state of excitation by the following chloroform narcosis during the operation. I applied the chloral of hydrate in form of a clyster, and increased the above-named dose to double or treble the quantity. I have also employed in the course of years pure chloroform narcosis, but my experiences of chloroform narcosis have not been quite encouraging. I used the very best kind of chloroform (Anschutz and Pictet, etc.), but all the same I had a fair number of cases of chloroform poisoning, that is to say, some have died during the narcosis, and out of these only a previously healthy horse—a pony cryptorchid, which was to be castrated, and which died from a dose of 80 grm. chloroform through systolic heart failure. A few other horses died during the operation from incarcerated inguinal hernia, and were already at the operation in a state of extreme weakness. But many cases of chloroform poisoning occurred from two to three days after the operation, several with fatal result, and the symptoms have been very conspicuous. Above all the very noticeable dyspnœa claims our attention; I have scarcely seen in any other illness such an accelerated respiration. I have deduced this symptom from heart failure; these complications mostly occur in old animals; although it was of a rather threatening nature and the respiration extremely accelerated and difficult, yet in some cases it became normal again after a few days. In some cases dyspnœa was accompanied by high fever and general indisposition and so persistent that one of the animals was killed.

Other animals have died. Some cases were combined with gangrenous inflammation of the lungs and a slight pleurisy, also degeneration of the muscles of the heart; other cases showed an inflammation of the lungs on the point of its development. One case was a parenchymal, fatty, highly developed degeneration of the muscle of the heart. To all certainty the chloroform was in the first place the cause of the rapid development of the degeneration of the muscle of the heart. During the last two days the horses were exceedingly weak and staggering, and the visible mucous membranes were discoloured, icteric, and the temperature greatly increased.

Most of these cases proceeded to recovery. During the last years I employed a mixture of 25 per cent. ether and 75 per cent. chloroform, and since then I have seen only one mild case of chloroform poisoning.

It has occurred sometimes that *balls of food got lodged in the œsophagus of the horse* when it took food again after awakening out of the narcosis—possibly the cause was a really morbid desire for food; very often indeed the animal is left for some time without food before serious operations. Or this complication is the result of a certain atony of the animal after the narcosis with lack of control over the size of the balls of food; or paresis of the muscles of the throat, or of lack of secretion of the glands and dryness in the upper organs of digestion resulting from that.

The usual ordinary symptoms of an obstruction in the œsophagus is impossibility to swallow, ample salivation, fits of coughing. The ball of food may slide down into the stomach on the same day, or stick fast until the following day or even still longer, and the disappearance coincide with its sliding down.

An injection of pilocarpin or arecoline hastens on the removal of the ball that, be it understood, can also be forced down by means of the gullet sound, although the sound must be applied with every precaution possible to avoid an injury to the œsophagus. In my experience frequently the result of the use of the sound was negative. Therefore I consider the most advisable method is to wait a few hours after narcosis before feeding the animal.

Now I turn to the action of chloroforming itself. It is astonishing to what extent the statements vary with regard to the dose necessary. Some say that they can put a horse into narcosis with 20 to 30 grm., others need 100 to 200 grm. or more.

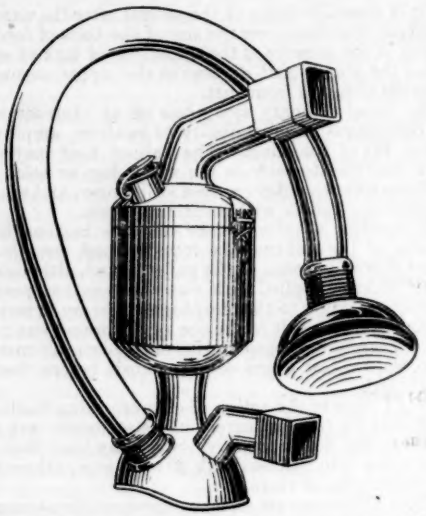
These differences are easily comprehensible on examining the different methods employed and the various conceptions of narcosis.

One method will have the vapours of chloroform applied in a form as concentrated as possible, another largely mixed with air; one apparatus is constructed in such a way that comparatively little chloroform gets outwardly lost. With another just the reverse is the case. Some consider the narcosis completed when the animal shows no further reaction of the tongue, and can in such cases fix the dose quite small. Others judge by the corneal reaction and certainly need a much larger quantity of chloroform. The quantity of chloroform used, as well as the danger in the action of chloroforming, depends to a very large extent upon the expertness of the person administering, and also on the attention which he gives to his work. It is a matter of continually paying attention to the vapour of chloroform having a sufficient concentration without incurring a waste of material. The smell of the exhaled air mixed with chloroform may be accepted as a guide. As soon as its intensity lessens a fresh saturation must be made. Failing this, the animal regains consciousness between each saturation and becomes repeatedly excited; this may necessitate the using of more time and employing large quantities before the actual narcosis recurs. Some hundreds of grammes even may be wasted, though the animal has not once been in an actual narcosis.

The operator has also to take care that the horse is not kept in a deeper narcosis more than is necessary. The best guide is the *corneal reflexion*, which indicates the state of the narcosis from beginning to end.

When the narcosis has reached the point where the corneal reflection ceases, the animal will be quite without consciousness. As is well known, with most operations, a somewhat dull corneal reflection is a sufficient sign.

I am inclined to assume, generally speaking, that the administrators of chloroform take their task too lightly, for it requires practice and constant attention if it shall be done *con amore*. For some years past the author has tried the various methods of chloroforming and experimented with different apparatus. The result of these experiments is the apparatus shown in diagram. This has been tested in about 1000 cases, and I believe that I am thus justified in recommending the apparatus. Before I proceed I will describe the same. By the way, some years ago there was a diagram of it in Hauptner's Catalogue.



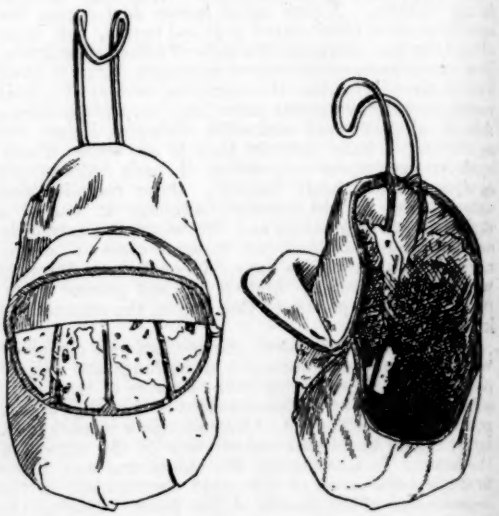
In a somewhat large reservoir is a sponge. A tube bent in an obtuse angle and fixed to the lid of the reservoir connects with the interior; the tube ends in a square end piece which is provided with a lightly vibrating valve that opens and closes when the inhalation and exhalation take place; there is, in addition, a tube also having a lid so that the pouring in of the chloroform can be effected should it be desired, otherwise the lid of the reservoir most be wholly lifted, which indeed serves the purpose best with regard to an equal dispersion of the chloroform in the sponge.

Another short tube starts from the bottom of the reservoir and ends in a shell-shaped mouth-piece harmonising in size with the shape of the horse's nose. This mouth-piece covering one of the nostrils bears two tubes. The one is similar in shape to that on the lid, but is smaller in size; it also is provided with a valve, which opens only when exhalation takes place. Another short tube is adjusted to the side of the shell to which an indiarubber tube 30 cm. long lined with a wire spiral leading to the other mouth-piece has been attached, meant to cover the other nostril. Both mouth-pieces are pressed firmly against the wings of the nostrils, so adapting themselves that the valve system works absolutely satisfactorily. The air enters the lid of the tank through the tube, passes through the sponges, receives the vapours therein, and enters into both nostrils through the mouth-piece, whilst the exhaled air escapes through the ventilation mouthpiece immediately attached to the under end of the reservoir; thus the exhaled air does not pass through the chloroform reservoir. In this manner chloroform is economised. The necessary quantity for this apparatus was 30, 50, 100 to 200 grm., according to the expertness of the administering person, to the susceptibility of the animal, and the duration of the narcosis. There is every justification for the objection that the practising veterinary surgeon can get along with a more primitive apparatus. The apparatus just described, however, taken as a whole is very simple, durable, and excels all others which have been suggested (the one of Hayne excepted) in covering of the nostrils only, and leaving the region of the lips and mouth free for operations. And this apparatus is so reliable that whoever has used it several times and gained some experience in its use is certain to adhere to it.

Previous to this the author had employed another apparatus, a much simpler one. This consists of a mask of iron wire, leaving the cavity of the mouth free. The wire must be soft enough to allow the mask to be bent according to requirements; its under edge is bent inwardly, thus forming an arch for the upper lip with the view of better fixing it. The upper end of the mask must end in a bent handle, short and wide which rests upon the bridge of the horse's nose. It must be shaped in such a way that it fits closely to the edges of the upper lip, the parts of the intermaxillary ossa and bridge of the nose, and arched to such an extent that when put on it leaves a space from 4 to 5 cm. above the wings of the nose, sufficient for two flattened close sponges somewhat larger than the nostrils. These sponges are placed on each side of the interior of the mask, so that when the mask has been put on the sponges cover the nostrils. The net of the mask is covered with flannel of such a thickness that the vapour of the chloroform cannot escape too easily.

There is, however, this disadvantage connected with the apparatus—it has to be removed each time a fresh saturation of chloroform is made, and, no doubt, the few breaths of fresh air which the horse consequently inhales from time to time contribute largely to the insensibility being delayed, and the necessity of the dose of chloroform being increased.

To avoid this the author has modified the apparatus in the following way: the skeleton wire is doubled, the outer part can be lifted like a visor by means of a hinge. The placement of the sponges on the inner side of the net is the same, but the flannel covers the outer frame only. Thus, when it is opened like a visor the sponges are exposed and can be saturated with chloroform whilst remaining on the animal's nose.



It may be assumed that the pouring of the chloroform on the flannel over the sponges in the original apparatus might just as well be done from the outside, but by no means with the same effect as in the modified apparatus, for the flannel absorbs a considerable part of the chloroform which evaporates into the open.

As a further improvement, the author has given this apparatus the form of a sack, so that it entirely surrounds the horse's nose, and, by means of an indiarubber, adheres tightly to the skin. Over the sponges on each side there is a round metal-mounted opening from 3 to 4 cm. diameter through which the chloroform can be poured, and a tube leads from each opening to the sponges.

What I have just said about horses is also applicable to cattle. I, for my part, have never experienced the inconvenience or by-effects in the chloroforming of cattle which are mentioned by some authors.

Especially for dogs, the mixed chloroform-ether narcosis is most applicable, and, if properly done, quite harmless; taken as a whole, a considerable number of dogs have been put into narcosis in the clinics in Stockholm without the least inconvenience.

The author has not been able to obtain the same good results as some others as regard to morphine as a means of completing the chloroform narcosis in horses. During half a year in numerous cases I have given morphine injections fifteen to twenty minutes before the administration of the chloroform: the quantity injected was 60 to 125 cgm., but I cannot say that I have discovered any difference worth mentioning in the quantity used of chloroform in the mixed narcosis and the pure narcosis, with exception of one case where the horse became unconscious with an unusually small dose of chloroform. Morphine is, however, a good means of preventing chloroform poisoning (Tullberg)

Local Anæsthesia.

I almost solely used cocaine for local anæsthesia. We have most minutely used the other means also, for instance tropacocaine and novocain, but I, for my part, have not been able to consider them as to be compared with cocaine or the solution of cocaine-adrenaline. I admit that cocaine, which we generally use at our institutions, is not altogether harmless. Several times we have experienced that, especially with animals of high breeding, 30 cgm. caused serious attacks of heart failure, which in some cases prove fatal. And after an injection, which was repeated a few times only (in all 90 cgm.), I have experienced a highly developed œdema of the lungs in consequence of the throwing down of the horse. I mostly used the cocaine in a solution of a 3 per cent., but in a considerably more diluted solution in form of infiltration anæsthesia.

We employ this local anæsthesia either as an injection directly over a nerve branch, as, for instance, on the pastern joint of a horse, in case of an operation on the hoof, or in form of a repeated injection at about that place where the operation is intended. A deep-seated operation of more serious nature cannot be effected in this way, but for skin-operations this method is the best. Deeper intraparenchymatous injections can also be made, but their results with horses are unsatisfactory as soon as it is a matter of deep incisions.

More satisfactory is the anæsthetic when injected over the nerve-trunk itself, especially if it is a smaller nerve, as branches of nervus medianus or nervus tibialis at the pastern, supposing it can be effected in or near by the sheath of the nerve, in any case in the immediate vicinity of the same if a greater effect is desired. Therefore injections over the nervus tibialis and medianus trunks are very often unsatisfactory. They lie subfascial and so deep that it is difficult for the injected solution to collect just at the proper place. Several experiments with injections of coloured solutions are made with testing horses at Stockholm institutions, and they have shown that the solutions often will be found in the meshes of the connective tissues, not, however, immediately at the side of the nerve, and the result, therefore, has often enough been illusive.

If the digital-nerves at the pastern came into question, I, as a rule, have used a dose of 15 cgm. in 3 per cent. solution on each side over nerves and 60 cgm. to 1 gm. over the stem of the nervus medianus—and if the injection was made simultaneously over the stem of the tibialis and peroneus, I used 60 cgm. over the former and 30 cgm. over the latter (all in 3 per cent. solution with a few drops of adrenalin solution 1 : 1000). Specially younger horses or horses of high breeding readily showed bright eyes, lively plays of the ears, unrest, etc., as the general effect of the larger dose of cocaine.

Cocaine is known as a good anæsthetic in the mucous membranes, but it is not sufficient in the case of a smaller but a deeper operation. In case of operations of the eyes, for instance, it must be used in a strong solution (5 to 10 per cent.), and dropped in repeatedly with an interval of a few minutes if a more effective anæsthesia is desired; but, for example, with an extirpation of the membrana nictitans dropping in is not sufficient without an intraparenchymatous injection, otherwise, the membrane cannot be taken away without reaction on the part of the animal.

TENTH INTERNATIONAL VETERINARY CONGRESS, 1914.

The following list completes to date the donations promised and received for the entertainment fund of the above Congress.

Those marked with an * denotes persons or Societies other than veterinary.

Frank W. Garnett.

Dalegarth, Windermere.
Sept. 21.

Paid. £	s.	d.		Promised £	s.	d.
3	3	0	Berry, A. H.	3	3	0
	10	6	Pearce, E. T.		10	6
3	3	0	Dobie, Thos.	3	3	0
5	5	0	Elder, W. A. (S. Africa)			
1	1	0	Pillers, A. W. N.	1	1	0
3	3	0	Craig, Prof. J. F.	3	3	0
3	3	0	Dobie, Wm.	3	3	0
5	5	0	Manuel, J. B.	5	5	0
1	2	0	Christy, J. M.	1	2	0
2	0	0	Hickes, R. J.	2	0	0
1	1	0	Elmes, G.	1	1	0
1	1	0	Pettifer, T. V.	1	1	0
1	1	0	East, J.	1	1	0
1	1	0	Mullane, P. J.	1	1	0
1	1	0	Heyes, J. P.	1	1	0
5	0	0	Falshaw, P. S. (Singapore)			
3	3	0	Bovett, E. W.	3	3	0
5	5	0	Parr, J. G.	5	5	0
1	1	0	Huston, C. E.	1	1	0
10	10	0	Western Counties V.S.			
1	1	0	Dudgeon, G. R.	1	1	0
5	5	0	* Rutherford, Dr. (Canada)	5	5	0
2	0	0	Baker, A.	2	0	0
1	0	0	Littlewood, Wm. (Cairo)	1	0	0
5	5	0	Spreull & Son	5	5	0
5	5	0	Spreull, J. (S. Africa)	5	5	0
1	1	0	Olver, W. T.	1	1	0
5	0	0	Dunstan, J.			
10	10	0	Slocock, S. H.			
5	5	0	Beal, W. P. B. (Coomassie)	5	5	0
10	10	0	Mettam, Prof. A. E.			
3	3	0	Miller, J. E.	3	3	0
2	0	0	Nicol, J. (S. Africa)	2	0	0
2	2	0	Latta, J. (2nd don.)	2	2	0
10	10	0	* Lonsdale, Lord	10	10	0
1	1	6	Hill, F. M. (Natal)	1	1	6
1	1	0	Webb, J. L. „	1	1	0
3	3	0	Lloyd, J. S.			
2	2	0	Wright, T. W. (Penang)	2	2	0
2	2	0	O'Connor, J. J.	2	2	0
1	1	0	Slocock, S. L.	1	1	0
2	0	0	Hornby, H. E. (Rhodesia) £5 guar.	2	0	0

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1 1 0	Conner, Jas.		
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5 5 0	* Midwood, C. N.		
2 0 0	Gair, G.		
1 1 0	Watson, A.		1 1 0
5 5 0	* Nat. Pig Breeders Assoc.		
1 1 0	Goodall, T. B.		1 1 0
2 0 0	Finch, R.		2 0 0
2 2 0	Hazelton, W. C.		
2 2 0	Dugdill, M.		2 2 0
30 10 5	Officers A.V.C.		12 10 5
1 0 0	Weir, R. E. (Australia)		
2 2 0	Howe, Jacob		2 2 0
3 3 0	Stewart, A. C.		3 3 0
5 5 0	Nisbet, J. B.		5 0 0
2 2 0	Blakeway, J. B.		2 2 0
1 1 0	Reekie, Wm.		1 1 0
2 2 0	Cox, F. W.		2 2 0
1 0 0	Pawlett, F. W.		1 0 0
2 2 0	Bowden, J. S.		2 2 0
2 2 0	Mulvey, W. J.		2 2 0
10 0 0	Stockman, Sir S.		
3 3 0	Clarke, W. R.		3 3 0
3 0 0	May, G.		3 0 0
1 1 0	Comerford, A. A.		1 1 0
2 0 0	Bostock, Major A.		2 0 0
1 0 0	Prentice, D. S.		1 0 0
1 1 0	Allan, D.		1 1 0
1 1 0	Archer, A. H.		
1 1 0	Bowlas, Thos.		
1 1 0	Burndred, W. G.		1 1 0
2 2 0	Harvey, F. T.		
10 6	Lindsay, F.		10 6
1 1 0	Brownless, J. W.		1 1 0
4 0 0	* Lander, Dr. G. D.		4 0 0
3 3 0	Batt, H. T., & Sons		3 3 0
52 10 0	Bond, P. G.		
1 11 6	Baxter, C.		
1 1 0	Oliphant, G. A.		1 1 0
25 0 0	Stephenson, C.		
5 0 0	Duck, Sir F.		5 0 0
3 3 0	Munro, A. M.		3 3 0
1 10 6	Brown, Wm., 2nd don.		1 10 6
1 1 0	Stableforth, W. P.		1 1 0
1 3 0	Prudames. W. C. & A.		1 3 0
1 1 0	Squair, C. A.		1 1 0
3 0 0	Revill, W. C. B.		3 0 0
1 2 0	Giblin, M. T.		1 2 0
2 2 0	Power, W. M.		2 2 0
25 0 0	Stephenson, C.		
1 1 0	Bowett, T.		1 1 0
3 0 0	Wilson, Major F. W.		3 0 0
1 0 0	McLaren, L.		1 0 0
5 0 0	Woodruff, Prof. H.		
2 19 0	McCunn, A.		2 19 0
1 2 0	Wynn-Williams, E.		1 2 0
1 0 0	McGeoch, A.		1 0 0
1 2 0	Perryman, W.		1 2 0
2 0 0	Brown, T. H.		2 0 0
2 0 0	Nimmo, J. S.		2 0 0
1 1 0	Barrow, H.		1 1 0
5 5 0	Hamilton, D.		
1 2 0	Stewart, Prof. J. D.		1 2 0
Mid. Count. V.S. per :			
3 3 0	Parsons, C. F.		
3 3 0	Duckworth & Prince		
10 10 0	Byner, C. J.		
1 11 6	Evershed, P. M.		

£ s. d. Paid.		£ s. d. Promised.	£ s. d. Promised.
2 6 0	Tipper, L. C.		
15 0 0	Midland Counties V.S.		
2 2 0	Slipper, T.		
10 10 0	Carless, W. S.		
Central V.S. per H. A. MacCormack, Esq. :			
1 1 0	Wallis, W. D.	1 1 0	
3 3 0	MacCormack, H. A.	3 3 0	
10 10 0	Central V.S.		
3 3 0	Neish, A.		
10 6	Butters, A. L.		
5 5 0	Reynolds, E. B.		
1 1 0	Macdonald, J. F.		
1 1 0	Martin, G. D.		
3 3 0	Wooldridge, Prof.		
5 5 0	Harrison, W. L.	5 5 0	
			9 9 0
Scottish Met. V.S. per J. Henderson, Esq. :			
10 6	Anderson, Wm.		
5 5 0	Bradley, O. C., 2nd don.	5 5 0	
5 5 0	Baird, A. "	5 5 0	
10 6	Robson, W. H.		10 10 0
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1 0 0	North of Scot. V.M.S.		
1 1 0	Brown, W.		
10 6	Cummings, D.		
10 6	Howie, G.		
10 6	Murray, J.		
1 1 0	McPherson, W.		
10 6	McVean, H. F.		
10 6	Crabb, D., sr.		
10 6	Crabb, D. jnr.		
10 6	Hepburn, W.		
10 6	Kerr, A.		
10 6	Marshall, W.		
10 6	Sievwright, A.		
1 1 0	Sinclair, G.		
10 6	Laing, W.		
10 6	Skinner, W.		
10 6	Beattie, J.		
1 11 6	Clarke, D.	1 11 6	
1 1 0	Morrison, D.	1 1 0	
			2 12 6
Eastern Counties V.S., per S. Smith, Jr., Esq.			
10 0	Buckingham, H.		
1 1 0	Burgon, A. P.		
1 1 0	Wallis, F. M.		
1 1 0	Bray, M.		
10 10 0	Leach, E. H.		
1 1 0	Waters, W.		
1 1 0	Barr, J.		
1 1 0	Turner, P.		
1 11 6	Smith, S.		
1 11 6	Smith, S., Jr.		
10 10 0	Eastern Counties V.S.		
Royal Counties V.S. per G. P. Male, Esq.			
10 10 0	Tennant, R. C.		
1 1 0	Wyllie, D.		1 1 0
Yorkshire V.S., per J. Clarkson, Esq.			
5 5 0	McKinna, J., 2nd don.	5 5 0	
2 2 0	Hallilay, F.		
5 0 0	Clarkson, J., 2nd don.	5 0 0	
10 10 0	Bowman, G. E.		
1 1 0	Deighton, P.		
5 0 0	Lazenby, J. W.	5 0 0	
1 1 0	Mason, A. W.		
3 3 0	McCarmick, A.		
			15 5 0

Paid. £ s. d.		Promised. £ s. d.	Promised. £ s. d.
Lincolnshire V.S., per T. Hicks, Esq.			
1 1 0	Parks, E. W.	1 1 0	
1 1 0	Johns, Alf.		
2 2 0	Poles, J. H.	2 2 0	
3 3 0	Leach, L. L.	3 3 0	
3 3 0	Grasby, W. W.		
3 3 0	Mackinder, J.		
3 3 0	Sugden, F. H.		
			6 6 0
West of Scotland V.S., per J. Weir, Esq.			
1 1 0	Baird, J.		
Vet. Dept. British East Africa, per R. J. Stordy, Esq.			
	Kearney, W.	1 0 0	
	Dixon, O.	1 0 0	
	Montgomery	1 0 0	
	Doherty, A. G.	1 0 0	
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	Edmondson, R.	1 0 0	
	Henderson, W. W.	1 0 0	
	Hall, G. N.	1 0 0	
	Brandt, F. R.	1 0 0	
	McCall, F. J.	1 0 0	
	Wheeler, R. C.	1 0 0	
	Kennedy, W.	1 0 0	
	Stordy, R. J.	1 10 0	
			13 10 0
Lancashire V.S., per E. H. Stent, Esq.			
5 5 0	Lancashire V.S.		
1 1 0	Stent, E. H.	1 1 0	
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2 0 0	Smith, C. S.		
3 3 0	Cockburn, W. L.		
1 1 0	Holroyd, J.		
2 2 0	Edwards, F. G.		
5 5 0	Taylor, W. A.		
5 5 0	Brittlebank, J. W.		
			2 2 0

"White Liver" in Sheep.

In November last reports were received by the Department of Agriculture (S.A.) to the effect that a disease described as "white liver" in sheep had broken out in certain districts of the Orange Free State, and was causing some mortality. The Government Veterinary Officer at Bloemfontein was requested to investigate, and a report by Government Veterinary Surgeon Joyce has now been received. Mr. Joyce states that the disease seems to have been general thaoughout the Winburg District and also in the south-west of Senekal. The symptoms during life and after death, as described by owners of affected sheep, generally agreed. Mr. Joyce gives these symptoms as follows:—

Symptoms during life. The sick animal stood alone and ceased to feed, and gradually became comatose and died. The illness lasted from two to eight days. Mr. Van Rooyen, jun., and Mr. Ferreira, stated that their sheep showed no inclination for water, but Major Johnstone stated that his drank copiously. None of these farmers noticed dropsical symptoms during life. In some instances there was diarrhœa, but this apparently was not a pronounced symptom.

Post-mortem. The lungs appeared healthy, but there was an increase of fluid in the pericardial sac. The stomach and intestines appeared healthy. The intestines were generally empty. Every one described the liver to appear as if it had been cooked, being very light coloured and easily friable; and the kidneys in the majority of cases looked like large blood clots. In others that were not so much affected there were patches of inflammation. These were the chief symptoms observed. The losses varied greatly. Mr. Van Rensburg lost 600 ewes in lamb; ewes of all ages in lamb, and weaners, were affected. Mr. Barrett, however, states that several hamels became sick.

Practically all visibly affected sheep died. One hamel recovered on Bantry. The disease started generally about the last week in August. In the case of Bantry for instance there was .47 inch of rain on the 3rd, 4th, and 5th of August, and the sheep started dying then. The sheep generally were in good condition and Major Johnstone states his veld was good. He also states that after this August rain "ewes fell off badly. I never saw sheep fall away so rapidly."

From what I can learn I am of opinion that all the flocks were more or less affected, and this is borne out by the extraordinary condition of the wool. It has been seriously affected. In many cases it has fallen out altogether, necessitating shearing, and all through the wool is lustreless and brittle. And in addition the general condition of the flocks suffered severely. No one appears to have taken temperatures, but the condition of the wool points to high fever. The disease seems to have ceased generally after the good rains in September, although Major Johnstone had a second outbreak commencing on 30th September.

Apparently very little artificial feeding was carried out on any of these farms, except that Major Johnstone fed mealies, but Mr. Thomson told me that his sheep commenced dying in the beginning of August after he had put them into rye. It will be observed that the disease has appeared under varying conditions, but I am inclined to the opinion that the trouble is dietetic and not microbic. I think it is possibly due to abnormal conditions. The condition of the sheep and of the veld appears to have been generally good up to the end of July. Then light rains came, and the new grass held no sustenance, and rapidly wilted under the action of the sun and frost. I have seen a somewhat similar result in good-conditioned cattle in this district. When the young grass appeared they would look at nothing else and they rapidly lost condition. Farmers tell me that they have seen the disease in other years, but in a much smaller degree; and Major Johnstone says that a Mr. Piet Steyn, in Winburg district, says he lost 700 ewes in 1881 from the same thing. Practically no medicinal treatment was carried out. Intestinal parasites do not appear to have been present to any extent.

Stampede at Newbury.

A serious stampede occurred on Saturday night, 12th inst., among the horses of the 1st South Midland Mounted Brigade, which is encamped on Newbury Racecourse. The brigade includes the Worcestershire, Warwickshire, and Gloucestershire Yeomanry, with just upon 2000 horses. The majority of these stampeded just after eight o'clock, galloped through the lines of the camp, and up and down the racecourse. Several were killed, and many badly injured.

Many of them got out and charged through the streets of Newbury in a body. Horses went through shop windows, and carts were overturned. The streets were crowded at the time, and although a number of people were knocked down no one was injured. Some of the animals went ten miles before they were stopped. Some of the horses got amongst the barbed-wire entanglements erected round the German prisoners' detention camp on the racecourse.

For the confinement of cattle more than twenty-eight hours without unloading for feed, water, and rest, thirty-seven prosecutions were reported to the Bureau of Animal Industry of the United States Department of Agriculture during June. The fines amounted to nearly 5000 dols.—that is to say, about £27 per case. Compare this with our 20s. and costs 2s. 6d.!

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period.		Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange.		Sheep Scab.	Swine Fever.	
		Outbreaks (a)	Animals.	Outbreaks (a	Animals.	Outbreaks (b)	Animals.	Outbreaks (b)	Animals.	(b)	Outbreaks (a)	Slaughtered. *
GT. BRITAIN. Week ended Sep. 19		10	12			2	2	2	2		103	470
Corresponding week in	1913 ...	12	14			3	3	17	25	1	46	543
	1912 ...	6	8	1	26	1	1	22	36		28	472
	1911 ...	16	16			3	8			1	48	456
Total for 38 weeks, 1914		548	600	22	108	80	192	1543	2678	155	3063	30470
Corresponding period in	1913 ...	402	444			121	298	1976	3958	133	1836	24377
	1912 ...	599	670	78	589	135	248	2403	5175	175	2318	30552
	1911 ...	628	779	8	425	148	346			310	1888	21973

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked: London 1, Notts 1
Board of Agriculture and Fisheries, Sept. 22, 1914

IRELAND. Week ended Sep. 19		...	...	...	...	...	...	Outbreaks 2	3	1	5	
Corresponding Week in	1913 ...	...	...	...	...	...	...	...	7	...	...	
	1912 ...	...	...	1	1	...	...	...	1	3	9	
	1911 ...	...	...	...	...	...	...	1	3	5	91	
Total for 38 weeks, 1914 ...		1	1	76	955	...	...	67	400	161	836	
Corresponding period in	1913 ...	...	...	...	...	...	...	102	390	113	693	
	1912 ...	3	3	27	261	...	...	53	265	183	1508	
	1911 ...	7	14	...	...	2	3	52	261	102	1708	

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Sep. 21, 1914
NOTE.—The figures for the Current Year are approximate only * As Diseased or Exposed to Infection

X-Rays and Cancer.

De. Jean Clunet, of Paris, read a paper before the Röntgen Society, at the Middlesex Hospital, Mortimer Street, on the "Histological Changes Produced by X-rays on Animal Tissues." Professor A. W. Porter presided.

Dr. Clunet called attention to the fact that the skin grew in progressive layers from below upwards. Each cell was born deep down in the structure and progressed upwards until finally it reached the outside and was cast off as a dead scale. In cancers of the skin on the other hand, the young cells did not submit to this gradual ageing process, but became active on their account, rebelled from discipline, and multiplied, at the expense of the organism. The effect of X-rays was to hasten the normal process of cell-ageing. Cells exposed to X-rays passed more quickly through the various stages towards death. But the effect varied with the strength of the ray application. Thus a violent application hastened the process of growth that all the layers of the skin were simultaneously turned, or rather hurried, into dead scale. The result was an ulcer. Under milder doses the skin became thin and atrophied. When small repeated doses were given great thickening of the skin occurred.

Dr. Clunet then entered into a technical discussion of these changes, and made it clear that, under strong rays, the cells of the skin were aged so quickly that they could not before death reproduce new cells to take their place; under milder rays a proportion of the cells was aged, but sufficient was left to maintain a thin "glassy" skin. Very small mild doses, on the other hand, had the effect of stimulating the cells to active growth and reproductivity. Skin cancers—epitheliomata and rodent ulcers—when treated with strong doses were aged *en masse*; they lost their deadly reproductiveness, and were turned into harmless scale. On the other hand, the small doses to which the radiographer was subject in course of the work caused overgrowth and inflammation of his skin, upon which, in some cases, actual cancer supervened. X-ray cancers were peculiarly difficult to heal. Acting on the principle, already enunciated, that the strong doses had a destructive effect on growth, he tried full applications upon one case of X-ray cancer. The result was favourable, but as the nerves had become involved treatment had to be abandoned.

Dr. Barlow, director of cancer research to the Middlesex Hospital, described the paper as marking a point in the history of radiation and of radiation therapy.

Personal.

BLACKHURST—HILL.—On the 17th inst., at the Parish Church, Adlington, W. Chorley, by the Rev. T. H. Minnett, assisted by the Rev. J. Preece, Arthur Owen, elder son of Charles Blackhurst, M.R.C.V.S., Downing, Broughton, near Preston, and grandson of the late Principal W. Williams, F.R.C.V.S., F.R.S.E., etc., founder of the New Veterinary College, Edinburgh, to Dorothy Mary, youngest daughter of the late Joseph Hill, and of Mrs. Hill, Adlington Hall, Chorley, Lancashire.

Principal PATERSON was appointed a representative on the governing body of the Glasgow Veterinary College, at a recent meeting of the Governors of the West of Scotland Agricultural College.

ARMY VETERINARY SERVICE

Extract from *London Gazette*,

WAR OFFICE, WHITEHALL, Sept. 18.

REGULAR FORCES. ARMY VETERINARY CORPS.

Special Reserve of Officers.

S. Hunter to be lieut. (on probation). Dated Sept. 8.
R. Wooff to be Lieut. (on probation). Dated Aug. 24.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

Albert Surtees Chisholm to be Lieut. Dated Sept. 19.
R. C. Matthews to be Lieut. Dated Sept. 19.

Sept. 21.

REGULAR FORCES. MEMORANDA.

The following are granted temporary rank of Brig.-Gen.

* * * *

Col. J. Moore, F.R.C.V.S. Dated Aug. 5.

Special Reserve of Officers.

Supplementary to Regular Units or Corps.

ARMY VETERINARY CORPS.

The following to be Lieuts (on probation):—
J. J. Hegarty, from Royal Vety. Coll. of Ireland Contingent, O.T.C. Dated Sept. 9.
W. McG. Mitchell, from Royal (Dick) Vety. Coll. Contingent, O.T.C. Dated Sept. 11.

Sept. 22.

Special Reserve of Officers.

ARMY VETERINARY CORPS.

The following to be Lieut. (on probation):—
H. L. Torrance. Dated Aug. 27.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

J. Cunningham to be Lieut. Dated Sept. 23.
A. H. Watson to be Lieut. Dated Sept. 22.

Sept. 24.

REGULAR FORCES. ARMY VETERINARY CORPS.

The following to be temporary Lieuts.:—
F. T. G. Hobday, F.R.C.V.S. Dated Aug. 13.
W. F. Morton. Dated Aug. 24.
L. S. Sedgwick, A. R. Symth. Dated Aug. 31.
W. W. Lang. Dated Sept 4.
E. E. Jelbart. Dated Sept. 7.

The War Office has issued the following casualties to officers, reported from the General Headquarters of the Expeditionary Force, under date Sept. 16:—

* * * *

Wounded.—Lieut. Stuart Kirby Jones, A.V.C.
Lieut. Francis Roche, A.V.C.

OBITUARY

JAMES HICKS, V.S., 25—27 Shand Street, Tooley Street, S.E., died on Sept. 17th. Aged 78 years.

THE URGENT CALL FOR VETERINARY SURGEONS.

Sir,

Your correspondents reveal a pitiable conception of the policy of the Royal College in this grave national emergency. Their letters are curiously contradictory. One, signing himself "M.R.C.V.S." urges that the different colleges be closed indefinitely to enable students to fulfil locums, whilst another signing himself "E." ventures his opinion that the colleges should not open so as to enable the students to enlist, but how, and as what, he does not condescend to say. Here, however, he says they "would gain experience of inestimable value to them when they obtained their diplomas."

Two correspondents "Retired V.S." and "Under 45," fail to see how the Army need veterinary surgeons because they themselves being over the age limit have been refused!

The Army urgently need young qualified veterinary surgeons. To supply this need as soon as possible, Prof. Hobday and Mr. Trigger urge that the final exam. for Class D men normally up at Christmas be expedited. The Royal College of Physicians and Surgeons have expedited their final examination and are allowing medical students to qualify two months before their specified time of training has expired, and so enable them to offer their services to the Government immediately. It is therefore the bounden duty of the Royal College to supply the Government with young qualified veterinary surgeons as soon as possible.—Yours truly,

"L"

Veterinary Societies—Addresses.

BORDER COUNTIES V.M.S.

Pres: Mr. J. W. Hewson, M.R.C.V.S., Wigton
Hon. Sec. (pro tem.): Mr. F. W. Garnett, M.R.C.V.S., Dalegarth, Windermere
Meetings, Second Friday of Feb., June, and October

GLASGOW V.M.S.

Pres. Principal McCall.
Hon. Sec. Mr. J. D. Fulton, 83 Buccleuch Street, Glasgow

ROYAL VETERINARY COLLEGE V.M.A.

Pres: Prof. E. Brayley Reynolds.
Hon. Sec: Mr. B. Gorton, M.R.C.V.S. *Assist*. Mr. E. E. Jelbart

ASSOCIATION OF VETERINARY OFFICERS OF HEALTH

Pres: Mr. T. Douglas, M.R.C.V.S., Kilmarnock
Hon, Sec. & Treas. Mr. A. M. Trotter, M.R.C.V.S., Moore Street, Abattoir, Glasgow

NATIONAL ASSOCIATION OF VETERINARY INSPECTORS

Pres: Mr. J. Abson, F.R.C.V.S., Sheffield
Hon. Sec: Mr. Trevor Spencer, M.R.C.V.S., Kettering

MUNSTER VETERINARY INSPECTORS' ASSOCIATION

Pres: Mr. D. M. Barry, M.R.C.V.S., Mallow
Hon. Sec: Ma. T. I. Alexander, M.R.C.V.S., Kinsall

NATIONAL VETERINARY BENEVOLENT & MUTUAL DEFENCE SOCIETY.

Pres: Mr. W. A. Taylor, F.R.C.V.S., Brick-st, Manchester
Hon. Sec: Mr. G. H. Locke, M.R.C.V.S., Grosvenor Street, Oxford-st., Manchester
Treas: Mr. J. B. Wolstenholme, F.R.C.V.S., Quay-street, Manchester

COLONIAL SOCIETIES (*continued next page*)

VETERINARY ASSOCIATION OF NEW SOUTH WALES

Pres: Mr. S. T. D. Symons. M.R.C.V.S., Chief Inspr. of Stock
V. Pres: Maj. A. P. Gribben, P.V.O., M.R.C.V.S.
Hon. Sec. & Treas: Mr. Max. Henry, M.R.C.V.S., B.V.SC. (SYD). 56 Bridge Street, Sydney

BRITISH COLUMBIA V.M.A.

Pres: Dr. Gibbons, M.R.C.V.S., Vancouver,
Hon. Pres: Dr. Hamilton, M.R.C.V.S., Victoria.
Sec., Treas., Registrar. Dr. T. Jagger, V.S., Vancouver.

ASSOCIATION MÉDÉCALE VÉTÉRINAIRE FRANÇAISE "LAVAL

Sec: Mr. J. P. A. Haude, Montreal

PROVINCE OF QUEBEC V.M.A.

Hon. Sec. Mr. Gustave Boyer, Rigaud, P.Q

VETERINARY ASSOCIATION OF ALBERTA

Hon. Sec. Mr. C. H. H. Sweetapple, For Saskatchewan, Alta, Can.

ONTARIO V.A.

Pres: Mr. J. H. Tennent, V.S., London, Ontario
Sec: & Treas: Mr. L. A. Wilson, Toronto, Ontario

TRANSVAAL V.M.A.

Pres: Mr. C. E. Gray, P.V.S., Box 134, Pretoria.
Hon. Sec: Mr. P. Conacher, G.V.S., Box 877, Johannesburg

NATIONAL VETERINARY ASSOCIATION

Past President: Mr. W. Woods, F.R.C.V.S., Wigan
Sec:
Assist. Sec: Mr. W. L. Harrison, F.R.C.V.S.,
11 Anchor Terrace, Southwark Bridge, S.E.
Treas: Prof. G. H. Wooldridge, F.R.C.V.S.,
Ryl. Vet. Coll., Camden Town N.W.

Northern Branch:

Pres, W. A. Taylor, (F) Brick Street, Manchester
Hon. Sec. A. W. Noël Pillers, (F)
71 Smithdown Lane, Liverpool

LANCASHIRE V.M.A.

Pres: Mr. G. H. Locke, M.R.C.V.S.,
Grosvenor-street, Manchester
Hon. Sec. Mr. J. W. Brittlebank, M.R.C.V.S.,
Town Hall, Manchester
Hon. Treas: Mr. E. H. Stent, M.R.C.V.S., Preston-st, Hulme
Meetings, 1st Thursday in April, June, Sept., & Dec.

LIVERPOOL UNIVERSITY V.M.S.

Pres: Mr. J. P. Heyes, F.R.C.V.S., Wigan
Hon. Sec: Mr. A. Walker, M.R.C.V.S., Mill Lane, West Derby
Pathological Sec: Mr. D. C. Matheson, F.R.C.V.S.
Meetings, May, July, October, January.

MIDLAND COUNTIES V.M.A.

Pres: Mr. J. Malcolm, F.R.C.V.S., Birmingham
Hon. Sec: Mr. H. J. Dawes, F.R.C.V.S.,
Camden House, High-st., West Bromwich
Hon. Treas. Mr. J. J. Burchnall, M.R.C.V.S., Barrow-on-Soar
Meetings, Second Tuesday, Wednesday, Thursday, and Friday alternately in Feb., May, Aug. and Nov.

NORTH OF ENGLAND V.M.A.

Pres:
Hon. Sec: T. T. Jack, M.R.C.V.S., 3 Elmwood Ter, Sunderland
Meetings, Third Friday, Feb., May, Aug. and Nov.

NORTH MIDLAND VETERINARY ASSOCIATION

Pres: Mr. F. L. Somerset, M.R.C.V.S., Chesterfield
Hon. Sec: Mr. J. S. Lloyd, F.R.C.V.S., Sheffield

NORTH WALES V.M.A.

Pres: Mr. Hugh Williams, M.R.C.V.S., Ty Croes
Hon. Sec. Mr. L. W. Wynn Lloyd, M.R.C.V.S., Carnarvon
Meetings, First Tuesday, March and September

SOUTH DURHAM AND NORTH YORKSHIRE V.M.A.

Pres: Mr. J. M. Walker, F.R.C.V.S., Hartlepool
Hon. Sec. & Treas: Mr. J. H. Taylor, F.R.C.V.S.
Grange Road, Darlington
Meetings, First Friday, Mar., June, Sept. and Dec.

YORKSHIRE VET. ASSOCIATION

Pres: Mr. J. Abson, F.R.C.V.S., Norfolk Street, Sheffield
Hon. Sec; Mr. J. Clarkson, M.R.C.V.S., Garforth, nr. Leeds
Hon. Treas: Mr. A. McCarmick, M.R.C.V.S.,
Kirkstall-road, Leeds

Southern Branch:

Pres. Sir Stewart Stockman, 4 Whitehall Place, S.W.
Sec. T. C. Toope, 34 High Street, Dover

CENTRAL V.S.

Pres. Prof. G. H. Wooldridge, R.V.Coll., Camden Town.
Hon. Sec: Mr. H. A. MacCormack, M.R.C.V.S.,
122 St. George's Avenue, Tufnell Park, N.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square, Holborn, at 7 p.m.

EASTERN COUNTIES V.M.A.

Pres. Mr. W. L. Little, F.R.C.V.S., Great Yarmouth
Hon. Sec. & Treas: Mr. A. C. Holl, M.R.C.V.S.
New Buckenham
Meetings, Second Tuesday, Feb., July and Sept.

LINCOLNSHIRE AND DISTRICT V.M.S.

Pres. Mr. C. W. Townsend, F.R.C.V.S.,
Long Stanton, Cambridge
Hon. Sec: & *Treas:* Mr. Tom Hicks, M.R.C.V.S.,
Boston Road, Sleaford
Meetings, Second Thursday Feb., June, and October

ROYAL COUNTIES V.M.A.

Pres: Mr. J. C. Coleman, M.R.C.V.S., Swindon
Hon. Sec. & Treas: Mr. G. P. Male, M.R.C.V.S., Reading
Meetings, Last Friday, Jan., April, July and Nov.

SOUTHERN COUNTIES V.S.

Pres: Mr. G. H. Livesey, M.R.C.V.S., Hove, Sussex
Hon. Sec: Mr. A. H. Archer, M.R.C.V.S., Southsea, Portsmouth
Hon. Treas: Mr. E. W. Baker, M.R.C.V.S., Wimborne
Meetings, Last Thursday, Mar., June and Sept.

SOUTH EASTERN V.A.

Pres. Mr. E. Lyne Dixson, M.R.C.V.S., Margate
Hon. Sec. & Treas. Mr. Theo. C. Toope, M.R.C.V.S.,
34 High Street, Dover
Meeting,

WESTERN COUNTIES V.M.A.

Pres: Mr. W. P. Stableforth, F.R.C.V.S., Colyton, Devon
Hon. Sec. Mr. W. Ascott, M.R.C.V.S., Bideford
Hon. Treas: Mr. P. G. Bond, M.R.C.V.S., Plymouth
Meetings, Third Thursday, March, July and November

Irish Branch:

Pres. Mr. W. Watson, Municipal Buildings, Dublin
Sec. Mr. P. D. Reavy, Leafield, Bundoran, Co. Donegal

CENTRAL V.A. OF IRELAND.

Pres: Mr. B. P. J. Mahony, M.R.C.V.S., Maryborough
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Treas: Mr. J. F. Healy, M.R.C.V.S., Midleton

CONNAUGHT V.M.A

Pres. Mr. D. Hamilton, M.R.C.V.S., Ballina
Hon. Sec. & Treas. Mr. A. J. Moffett, M.R.C.V.S., Galway

VET. MED. ASSN. OF IRELAND.

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Hon. Treas: Prof. J. F. Craig, M.A., M.R.C.V.S.,
R.V. Coll., Dublin

NORTH OF IRELAND V.M.A.

Pres: Mr. J. A. Jordan, M.R.C.V.S., Belfast
Hon. Sec; Mr. J. Ewing Johnston, M.R.C.V.S., Belfast
Hon. Treas;

Scottish Branch:

Pres. Dr. O. Charnock Bradley, } Ryl. (Dick) Vet.
Hon. Sec. Prof. A. Gofton, } Coll: Edinburgh

NORTH OF SCOTLAND V.M.S.

Pres: Mr. W. Marshall, M.R.C.V.S., Aberdeen
Hon. Sec. & Treas: Mr. G. Howie, M.R.C.V.S. Alford, Aberdeen
Meetings, Last Saturday in January and August

ROYAL SCOTTISH V.S.

Pres: Mr. Reid, M.R.C.V.S., Auchtermuchty.

SCOTTISH METROPOLITAN V.M.S.

Pres: Mr. J. Riddoch, M.R.C.V.S., Edinburgh
Hon. Sec. & Treas: Mr. Jas. Henderson, M.R.C.V.S.,
Public Health Dept., City Chambers, Edinburgh

WEST OF SCOTLAND V.M.A.

Pres: Prof. John R. McCall, M.R.C.V.S., Vety. Coll. Glasgow
Hon. Sec: Mr. J. F. Macintyre, M.R.C.V.S.,
19 Bank Street, Hillhead, Glasgow
Hon. Treas: Mr. Geo. W. Weir, M.R.C.V.S.,
88 Crookston Street, Glasgow
Meetings, Second Wednesday, May, Oct. and January.

COLONIAL SOCIETIES: *(see preceding page)*

CAPE OF GOOD HOPE V.M.S.

Pres. Mr. J. D. Borthwick, M.R.C.V.S., Cape Town
Hon. Sec. & Treas. Mr. J. W. Crowhurst, F.R.C.V.S.
Longmarket Street, Cape Town

CENTRAL CANADA V.A.

Pres. Mr. Geo. Hilton
Hon. Sec: Mr. Charles Evans, Ottawa

VET. ASSN. OF MANITOBA.

Pres: Dr. W. R. Taylor, Portage la Prairie
Hon. Sec. & Treas: Mr. Wm. Hilton, Winnipeg

NATAL VETERINARY MEDICAL ASSOCIATION.

Pres. Mr. F. J. Carless, M.R.C.V.S., Mooi River
Hon. Sec. & Treas. Mr. A. Goulé, Eshowe, Zululand